

1           1. A method for prioritizing data transmissions from a switching station, the method  
2 comprising:

3           receiving a data transmission of the data transmissions; 332  
4           selecting a property corresponding to the data transmission, the property reflecting  
5 a relative importance of the data transmission; and  
6           determining a priority for the data transmission in accordance with the property.

7  
8           2. The method of claim 1, further comprising maintaining a database containing  
9 information from data transmissions through the switching station.

10  
11           3. The method of claim 2, wherein the property is further obtained from the database.

12  
13           4. The method of claim 3, wherein the property is further derived from a destination  
14 contained in the data transmission.

15  
16           5. The method of claim 4, wherein the property further comprises a number of  
17 origins stored in the database, the origins having previously sent data transmissions to the  
18 destination through the switching station.

19  
20           6. The method of claim 5, wherein a data transmission having a number of origins  
21 greater than a threshold value receives a high priority, and a data transmission having a  
22 number of origins not greater than the threshold value receives a low priority.

23  
24           7. The method of claim 6, wherein the threshold value is four (4) origins.  
25  
26

1           8. The method of claim 2, further comprising periodically clearing the database to  
2 ensure that the database remains current.

3  
4           9. The method of claim 1, further being carried out by a packet prioritization station  
5 in communication with the switching station.

6  
7           10. The method of claim 9, wherein the packet prioritization station is further  
8 configured to receive an origin and a destination for a data transmission from the switching  
9 station.

10  
11           11. The method of claim 10, wherein the packet prioritization station is further  
12 configured to provide the priority to the switching station.

13  
14           12. The method of claim 11, wherein the switching station communicates with the  
15 packet prioritization station through an interrupt controller, the interrupt controller providing  
16 an intransitive interrupt.

17  
18           13. The method of claim 1, wherein determining a priority for the data transmission  
19 in accordance with the property comprises assigning a high priority to a data transmission  
20 with a high relative importance, and assigning a low priority to a data transmission with a  
21 low relative importance.

22  
23           14. The method of claim 13, further comprising ordering data transmissions of equal  
24 priority in cyclical form according to a port through which the data transmission will be  
25 transmitted.

26

1           15. A computer-readable medium containing instructions that cause a prioritization  
2 system configured to prioritize data transmissions from a switching station to perform a  
3 method comprising:

4           receiving a data transmission of the data transmissions;  
5           selecting a property corresponding to the data transmission, the property reflecting  
6 a relative importance of the data transmission; and  
7           determining a priority for the data transmission in accordance with the property.

8  
9           16. The computer-readable medium of claim 15, wherein the method further  
10 comprises maintaining a database containing a destination and one or more origins associated  
11 with the destination, the origins having previously sent data transmissions to the destination  
12 through the switching station.

13  
14           17. The computer-readable medium of claim 16, wherein the priority is proportional  
15 to the number of origins associated with the destination of the data transmission.

16  
17           18. A prioritization system configured to prioritize data transmissions from a  
18 switching station, the prioritization system comprising:

19           a cache writing module configured to store a property corresponding to a data  
20 transmission, the property reflecting a relative importance of the data transmission;

21           a cache reading module configured to receive the property; and

22           a comparison module configured to determine a priority of the data transmission in  
23 accordance with the property.

24  
25           19. The prioritization system of claim 18, further comprising a cache containing a  
26 database, the database containing the property.

1           20. The prioritization system of claim 19, wherein the property is obtained from  
2 previous data transmissions through the switching station.

3  
4           21. The prioritization system of claim 20, wherein the property corresponds to a  
5 destination of the data transmission.

6  
7           22. The prioritization system of claim 21, wherein the property comprises a number  
8 of origins stored in the database, the origins having previously sent data transmissions to the  
9 destination through the switching station.

10  
11           23. The prioritization system of claim 22, wherein the comparison module provides  
12 a high priority for a data transmission having more than a threshold number of origins, and  
13 a low priority for a data transmission having no more than a threshold number of origins.

14  
15           24. The prioritization system of claim 23, wherein the threshold number of origins  
16 is four (4).

17  
18           25. The prioritization system of claim 24, wherein the cache writing module further  
19 periodically deletes all destinations and origins from the database.

20  
21           26. The prioritization system of claim 18, further comprising a marking module  
22 configured to designate a current port of a plurality of ports of a switching station.

23  
24           27. The prioritization system of claim 26, further comprising an incrementing  
25 module configured to cyclically change the current port to permit alternating data  
26 transmissions of equal priority.

1        28. A computer-readable medium for a system configured to prioritize data  
2 transmissions from a switching station, the computer-readable medium storing data  
3 structures comprising:

4            a cache writing module configured to store a property corresponding to a data  
5 transmission, the property reflecting a relative importance of the data transmission;

6            a cache reading module configured to receive the property; and

7            a comparison module configured to determine a priority of the data transmission in  
8 accordance with the property.

9  
10        29. The computer-readable medium of claim 28, wherein the property comprises a  
11 number of origins associated with a destination contained in the data transmission.

12  
13        30. The computer-readable medium of claim 29, wherein the priority is proportional  
14 to the number of origins.

15  
16        31. A switching system configured to route data transmissions between a plurality  
17 of locations, the switching system comprising:

18            a switching station configured to receive and send the data transmissions;

19            a packet prioritization station configured to determine a transmission order of the data  
20 transmissions; and

21            the transmission order reflecting a relative importance of the data transmissions.

32. The switching system of claim 31, wherein the switching station comprises:  
a processor;  
a program memory configured to provide instructions to the processor;  
a buffer configured to store data transmissions;  
a cache configured to store information from data transmissions;  
a bus operably connected to provide communication between the processor, the  
buffer, and the cache; and  
a plurality of ports connected to the buffer, the ports being in communication with  
a plurality of destinations.

33. The switching system of claim 31, further comprising an interrupt controller  
connected to the bus of the switching station and disposed to control communications  
between the switching station and the packet prioritization station.

34. The switching station of claim 32, wherein the packet prioritization station  
comprises a bus connected to the interrupt controller.

35. The switching station of claim 31, wherein the packet prioritization station  
comprises:

a processor;  
a program memory configured to provide instructions to the processor;  
a cache configured to store origins and destinations contained in data transmissions;  
and  
a bus operably connected to provide communication between the processor, the  
program memory, and the cache.